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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,371	02/06/2004	Keiji Ohbayashi	02126D/HG	9785

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EXAMINER

PARKER, FREDERICK JOHN

ART UNIT PAPER NUMBER

1762

DATE MAILED: 01/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/773,371	Applicant(s) OHBAYASHI ET AL.	
	Examiner Frederick J. Parker	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17, 18 and 20-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17, 18 and 20-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11-30-05 has been entered.

1. Claims 17,18,20-22,26-29,31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. US 5612281 in view of "Modern Coating and Drying Technology", 2001.

Kobayashi et al teaches forming ink jet recording sheets formed by applying a coating composition of water or other solvent, inorganic particles, and hydrophilic resin binder (PVC, MC, etc) onto a support and drying over a period of constant temperature as described on col. 9, 41-47; col. 12, 2-5; col. 15, 50-52. Incorporation of a polymer cross-linker which causes necessarily provides hardening is cited on col. 8, 32-41; addition at any point would have been obvious to provide a porous layer with suitable properties for ink jet printing. Since drying is for a specific time period/s at a given temperature (i.e. drying over "at least a constant drying rate period"), after that time the onset of cooling beings a period of falling drying rate, to form a colorant receptive layer per claims 17-18. The drying period of the coating would evaporate solvent, which necessarily maintains the surface at a constant temperature during evaporation. Upon reaching the dry state, surface temperature would inherently rise because less or no solvent remains to absorb the heat for evaporation. "Modern Coating and Drying Technology", 2001 is introduced to show the inherency of these thermal effects during the stages of drying. Simply

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because the reference does not explicitly cite the inherent mechanisms of each drying step per claims 17-18 does not impart patentability. The layer is then treated with a solution comprising a silan (sic) coupling agent additive dissolved in water or organic solvent (col. 10,39+), per claim 21. The agent reduces bleeding or blooming of subsequently applied ink ("image stabilizer") per claim 29. The forming of the receptive layer coating solution includes adjusting pH to 4.5 (overlapping claim 31) and may include an anti-static agent (a "surface active agent" since it changes surface activity) per claim 26. The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made if the overlapping portion of the pH range disclosed by the reference were selected because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Wortheim* 191 USPQ 90.

Per claim 18, the incorporation of a solution comprising an additive at a specific point in a process is simply a matter of choice which would not have been expected to produce any difference in outcome, absent a clear and convincing showing to the contrary, since further drying of the agent solution is required. As to claim 17, applying the ink receptive coating followed by the agent-containing solution in the same coating line, or in separated sequential coating lines would have been expected to provide equivalent results, absent a clear and convincing showing to the contrary, and therefore does not involve inventiveness over the prior art, *In re Tatincloux* 108 USPQ 125. MPEP 2144.04E states a continuous process of a claim would have been an obvious variation in light of a batch process of the prior art, and accordingly Applicants' limitation to the continuous line ("same coating line...") would have been an obvious variation which does not patentably distinguish over the prior art. As to claim 20, since the processes of the independent claim is obvious over *Kobayashi et al*, it would have been

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reasonable to expect the references also meet the limitations of the formula describing the process of claim 20. Per claim 22, winding of the coated sheet prior to drying would have been an obvious manufacturing step to consolidate the sheet prior to shipping, storage, or further use, since there would not have been expected to be any difference in outcome whether the sheet is rolled or not rolled. The viscosity of the solution coating agent is not stated, nor limited; however, one of ordinary skill would have optimized viscosity to provide a desired degree of distribution of the agent in the ink receptive layer per claim 27.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to carry out the process of Kobayashi in view of "Modern Coating and Drying Technology", 2001 in a continuous mode as opposed to a batch mode because it is well-settled that the change would have been obvious and does not patentably distinguish over the prior art.

2. Claims 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al in view of "Modern Coating and Drying Technology", 2001 and further in view of Patterson et al US 4732786.

Kobayashi et al and "Modern Coating and Drying Technology", 2001 are cited for the same reasons previously discussed, which are incorporated herein. Applying a solution comprising a polyvalent metal additive is not disclosed.

Kobayashi et al forms an ink jet receptive layer on a sheet. Patterson et al teaches on col. 2, 66 to col. 3, 41 to form a similar hydrophilic resin-based formulation to which is added a polyvalent metal complexing agent to cause immobilization of the polymer for ink jet coated substrates. The criticality of controlling pH is discussed on col. 3, 15-43, including maintaining a pH of about 5-

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8.5, overlapping claims 31-32. The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made if the overlapping portion of the pH ranges disclosed by the reference were selected because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Wortheim* 191 USPQ 90. The polyvalent metal solution can be mixed with the formulation OR separately applied at any time during the coating process, encompassing after application and drying of the polymer coating.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Kobayashi in view of “Modern Coating and Drying Technology”, 2001 by incorporating the polyvalent metal solution of Patterson et al to the applied polymer film to provide complexing of the polymer to form the ink receptive layer.

3. Claims 23-25,28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al in view of “Modern Coating and Drying Technology”, 2001 and further in view of Saito US 6197381.

Kobayashi et al and “Modern Coating and Drying Technology”, 2001 are cited for the same reasons previously discussed, which are incorporated herein. A polyolefin resin paper substrate is not disclosed.

Saito teaches forming an ink receptive layer comprising binder and inorganic particles on a sheet substrate for ink jet printing, and includes applying a hardener coating composition to the dried, ink-receptive coating (col. 7, 1-8). The sheet substrate includes a polyolefin coated paper (col. 1, 59-63).

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As to claim 25, since the meaning of the formula is uncertain, and the processes of the independent claim is anticipated by both Kobayashi et al and Ichinose et al, it would have been reasonable to expect the references also meet the limitations of claim 25.

The maximum water content of the paper is not stated nor limited, and therefore encompasses claim 24.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Kobayashi et al in view of “Modern Coating and Drying Technology”, 2001 by utilizing the substrates and hardener application of the similar method of Saito because of the expectation of successfully forming an ink receptive sheet for ink jet printing.

4. Claims 17-18,20-22,27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichinose et al US 6685999 in view of “Modern Coating and Drying Technology”, 2001.

Ichinose et al teaches making a coated recording medium for inkjet printing by coating a substrate with a formulation comprising inorganic particles and hydrophilic binder. The sheet substrate may be a polyethylene (= olefin) coated paper, per claim 23. The coating is dried at or above 100C to evaporate the alcohol and/or water solvents (col. 13, 41-50; col. 18, 6-15), which inherently requires maintaining the surface at a constant temperature during evaporation at the constant temperature. Upon reaching the dry state, surface temperature would inherently rise as the amount of solvent is minimal or eliminated. “Modern Coating and Drying Technology”, 2001 is introduced to show the inherency of the thermal effects during the stages of drying, as

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described above. Simply because the reference does not explicitly cite the inherent mechanisms of each drying step of claims 17-18 does not impart patentability. Subsequently a liquid ink comprising colorant additives is applied by printing, and the colorants are absorbed by the inorganic constituents of the layer, meeting (c) of claim 17.

Per claim 18, the incorporation of a solution comprising an additive at a specific point in a process is simply a matter of choice which would not have been expected to produce any difference in outcome, absent a clear and convincing showing to the contrary, since further drying of the agent solution is required. Thus applying the solution containing an additive after the constant drying rate but just before the culmination of the falling drying rate would have been expected to produce the same results if the additive-containing solution was incorporated slightly earlier or later. As to claim 20, since the processes of the independent claim is obvious over Ichinose et al , it would have been reasonable to expect the references also meet the limitations of claim 20. Per claim 22, winding of the coated sheet prior to drying would have been an obvious manufacturing step, to consolidate the sheet prior to shipping, storage, or further use, since there would not have been expected to be any difference in outcome whether the sheet is rolled or not rolled. The viscosity of the solution coating agent is not stated, nor limited; however, one of ordinary skill would have optimized viscosity to provide a desired degree of distribution of the agent in the ink receptive layer per claim 27.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to carry out the process of Ichinose et al in a continuous mode as opposed to a batch mode because it is well-settled that the change would have been obvious and does not patentable distinguish over the prior art.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 17,28 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 17,20 of U.S. Patent No. 6582802 in view of "Modern Coating and Drying Technology", 2001. Although the conflicting claims are not identical, they are not patentably distinct from each other because while both form the same ink receiving layer and drying, the instant application incorporates an additive solution which can include a hardener, whereas '802 simply cites a hardener, the hardener solution form being merely an obvious choice. While constant and falling drying rate periods as now defined are not claimed, sections 7.3.2 and 7.3.3 of the secondary reference teach the inherency of such steps in any drying process whose end product is a dry coating. The added limitation "in the same coating line...." is an obvious variation for the reasons discussed above, and therefore it does not overcome the double patenting rejections.

Response to Arguments

Applicants arguments have been considered; the Examiner appreciates Applicants defining in the claims the intended meaning of the drying steps to conform with conventional meaning. The


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Examiner also appreciates Applicants' supporting the record with the "Modern Coating and Drying Technology" reference. It is noted section 7.3.2 and fig. 7.4 correspond to the explanation of the McGraw Hill reference already on the record, which positively advances prosecution. The modified rejections reflect Applicants' amendments. Applicants are invited to contact the Examiner for an interview if they feel it would expedite prosecution.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frederick J. Parker whose telephone number is 571/ 272-1426. The examiner can normally be reached on Mon-Thur. 6:15am -3:45pm, and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571/272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Frederick J. Parker
Primary Examiner
Art Unit 1762

fjp